

a database including data concerning transaction message formats, wherein the database includes stored information concerning transformation of messages between at least one internal message format and a plurality of external message formats including at least one external message format for communicating with an ATM; and

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a computer in operative connection with the database, wherein the computer includes a message gateway router software function (MGR), wherein the MGR is operative to determine a format of a received message, the received message having either the internal format or one of the external formats and a message direction indicator associated with the message, the message direction indicator being indicative of either an incoming message direction or an outgoing message direction, wherein when the received message is in the internal format the MGR is operative responsive to the message direction indicator being indicative of the outgoing message direction to transform the message selectively to any one of the plurality of external formats, and wherein when the received message is in one of the plurality of external formats the MGR is operative responsive to the message direction indicator being indicative of the incoming message direction to transform the message to the internal format.

2. (once amended) The system according to claim 1 and further comprising a plurality of external devices including at least one ATM, wherein each external device is in operative connection with the computer and communicates with the computer through messages in one of the external formats, and wherein the database further includes data representative of each external device and an external format used to communicate with the device, and wherein the MGR is operative responsive to the stored data to convert a message received from the device from the external format associated with the device to the internal format, and to convert a message to the device from the internal format to the external format.

Kindly rewrite claims 3-4 without amendment as follows:

3. The system according to claim 2 wherein the database includes data representative of an identity for each device, wherein the identity data is stored in correlated relation with the external format data, and wherein the MGR is operative to transform the message responsive to the identity data associated with a device sending or receiving the message.

4. The system according to claim 2 wherein the database includes data representative of message types for each of the internal and external formats, and wherein the MGR is operative to transform the message responsive to the message type data associated with the message.

Kindly replace claim 5 with the following amended claim 5.

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5. (once amended) The system according to claim 2 wherein said database includes data representative of offset and length information for each of the internal and external formats, and wherein the offset and length information defines a location of data representative of a message type in each of said formats, and wherein the MGR is operative to transform the message responsive to the data representative of the message type.

Kindly rewrite claim 6 without amendment as follows:

6. The system according to claim 4 wherein the database includes data representative of a message identifier value, wherein each message identifier value is associated with one message format and one message type, and wherein the MGR is operative to transform the message responsive to the message identifier value associated with the message.

Kindly replace claim 36 with the following amended claim:

36. (once amended) A system for processing financial transactions comprising:

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a computer in operative connection with a database means for storing data representative of information for transforming messages between at least one internal message format and a plurality of external message formats including at least one external message format for communicating with an ATM, and wherein the computer is operative to set a message direction corresponding to each

message processed by the computer, wherein the message direction is indicative of whether a corresponding message is in the internal message format or one of the external message formats;

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a transforming means in operative connection with the computer for transforming messages between the external formats and the internal format responsive to the message direction corresponding with each respective message and the information stored in the database means;

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a plurality of external devices including at least one ATM, each external device being in operative connection with the computer and operative to send and receive messages; and

processing means operating in the computer wherein the processing means is operative to send and receive messages in the internal format, and wherein the processing means is operative to communicate with the external devices by passing messages through the transforming means.

Kindly rewrite claim 37 without amendment as follows:

37. The system according to claim 36 and further comprising a timing means for timing an elapsed time since a message was transmitted without a response, and wherein the

timing means is operative to send a timing response message when the time has passed without the response being received.

Kindly add the following new claims:

38. A system processing transaction messages comprising:

a database including stored information concerning transformation of messages between at least one internal message format and a plurality of external message formats including at least one external message format for communicating with an ATM; and

a computer in operative connection with the database, wherein the computer includes at least one message transformation software component, wherein the message transformation component is operative to cause the computer to determine a format of a first message, and wherein when the first message is in an external format the message transformation component is operative to cause the computer to transform the first message responsive to the determined format to an internal format message corresponding to the first message, and wherein when the first message is in the internal message format the message transformation component is operative to cause the computer to transform the first message responsive to the determined format selectively to any one of the plurality of

external formats, wherein the first message is transformed to an external format message corresponding to the first message.

39. A method for processing transaction messages in a system including at least one computer in operative connection with a data store, comprising the steps of:

storing in a data store, data concerning at least one internal message format and a plurality of external message formats including at least one external message format for communicating with an ATM;

determining a format of a message with the computer responsive to the information stored in the data store; and

transforming the message responsive to at least one message transformation software component operating in the computer responsive to the determined format and the data in the data store, wherein when the determined format is one of the external formats the message is transformed from the one external format to the internal format, and wherein when the determined format is the internal format the message is transformed selectively to any one of the plurality of external formats.

40. A system for processing messages from a plurality of operatively connected devices, comprising:

a computer;

a plurality of devices including at least one ATM, in operative connection with the computer;

a data store in operative connection with the computer, wherein the data store includes for each of the plurality of devices, data representative of a system address and a device message format of at least one message sent by the device, and data representative of each device message format and at least one second message format;

software operating in connection with the computer, wherein the software is operative responsive to a first device sending a first message having a first device message format and the data stored in the data store, to cause the computer to produce a second message in a second message format corresponding to the first message.

41. The system according to claim 40 wherein the data store includes for each device message format, data representative of converting a message in the device message format to the

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second message format, and wherein the software is operative to cause the computer to convert the first message from the first message format to the second message format.

42. A method for processing messages generated by a plurality of devices including at least one ATM, each of the devices communicating messages in a different device message format, the processing conducted with a computer in operative connection with a data store, comprising the steps of:

storing in the data store, data representative of each of the devices operatively connected to provide messages to the system, and storing for each of the devices, data representative of a device message format in which each device communicates at least one device message;

storing in the data store, data representative of how to produce responsive to each device message in a device message format, a corresponding message in a second message format;

storing in the data store, data representative of how to process messages in the second message format;

receiving device messages with the computer from the devices including at least one ATM;

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producing responsive to the device messages, corresponding messages in the second message format through operation of the computer responsive to data stored in the data store; and

processing with the computer the messages in the second message format responsive to data stored in the data store.

43. The method according to claim 42 wherein the plurality of devices include a plurality of types of external devices, wherein each type of external device communicates in a corresponding external message format, and wherein the second message format includes an internal message format, and wherein in the producing step the computer is operative to transform the external format messages to internal format messages.

44. The system according to claim 36 wherein the plurality of external devices include a plurality of financial transaction terminals, and wherein at least one of the plurality of external devices includes a financial transaction authorization system.

45. The system according to claim 44 wherein the computer is operative to transform messages in a plurality of external message formats communicated by the plurality of terminals, to corresponding messages in the internal message format, and the corresponding messages in the internal message format to corresponding messages in an external message format communicated by the financial transaction authorization system.

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46. The system according to claim 36 wherein the plurality of external devices include a plurality of financial transaction terminals and a plurality of financial transaction authorization systems.

47. The system according to claim 46 wherein the computer is operative to transform messages in a plurality of external message formats communicated by the plurality of terminals to corresponding messages in the internal message format, and the corresponding messages in the internal format to a plurality of external message formats communicated by the plurality of financial transaction authorization systems.

48. The system according to claim 38 wherein each message has a message direction indicator associated therewith, and wherein the computer is operative to transform each message between the internal message format and an external message format responsive to the message direction indicator associated with the particular message.

49. The method according to claim 39 wherein the storing step further comprises storing in the data store, data concerning a plurality of external devices, and for each external device, data corresponding to a system address and an external message format used in communicating with the device.

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50. The method according to claim 49 wherein in the storing step the plurality of external devices include a plurality of financial transaction terminals and at least one financial transaction authorization system.

51. The method according to claim 50 wherein in the storing step the plurality of external devices include a plurality of financial transaction authorization systems.

52. The method according to claim 51 wherein the plurality of financial transaction authorization systems communicate messages in a plurality of external message formats, wherein the storing step includes storing in the data store, data corresponding to the external message formats used in communicating with each of the financial transaction authorization systems.

53. The method according to claim 49 wherein in the determining step, the message is an external format message from an external device, and wherein the format is determined responsive to a system address corresponding to the external device that is stored in the data store.

54. The method according to claim 49 wherein in the determining step the message is determined to be an internal format message, and wherein in the transforming step the message is transformed to an external message format responsive to a system address corresponding in the data store to an external device to which the message is being directed.

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55. The method according to claim 39 and prior to the transforming step, further comprising the step of associating with the message a message direction indicator, wherein in the transforming step the message is transformed responsive to the message direction indicator either from the internal message format to an external message format or from one of the external message formats to the internal message format.

56. Computer readable media bearing instructions which are operative to cause a computer to carry out the method steps recited in claim 39.

57. A system comprising:

a plurality of first external devices, including at least one ATM, the plurality of first external devices communicating first messages in a plurality of first message formats;

at least one second external device, the at least one second external device communicating second messages in at least one second message format;

at least one computer in operative connection with the plurality of first external devices and the at least one second external device;

wherein the at least one computer is in operative connection with data in at least one data store usable by the at least one computer to convert messages in each of the plurality of first message formats and the second message format to an internal message format, wherein the computer is operative to communicate messages between the plurality of first external devices and the second external device by transforming messages in the plurality of first message formats and second message formats to the internal message format.

58. The system according to claim 57 wherein the plurality of first external devices include a plurality of financial transaction terminals.

59. The system according to claim 58 wherein the at least one second external device includes a financial transaction authorization system.

60. The system according to claim 57 wherein the at least one computer is operative to cause to be associated with each message, a message direction indicator, and is operative to convert a message between the internal message format and an external message format responsive to the message direction indicator associated with the message.

61. The method according to claim 57 wherein the at least one data store includes system address data including a system address for each of the plurality of first external devices and the at least one second external device, and wherein the at least one computer is operative to

convert each message which is in either the first or the second message formats to a corresponding message in the internal message format responsive to a system address associated with a first or second external device which generated the particular message.

62. The system according to claim 57 wherein the at least one data store includes system address data including a system address for each of the plurality of first external devices and the at least one second external device, and wherein the at least one computer is operative to convert each message which is in the internal message format to a corresponding message in either the first or the second message format responsive to a system address associated with a first or a second external device to which the particular message is being directed by the computer.

63. A method comprising:

- (a) storing in at least one data store, data usable by a computer to accomplish conversion of messages in a plurality of first external message formats in which a plurality of first external devices including at least one ATM communicate, and at least one second external format in which at least one second external device communicates, to corresponding messages in an internal message format;

- (b) operating at least one computer responsive to the data stored in the data store to communicate messages between the plurality of first external devices and the at least one second external device.

64. The method according to claim 63 wherein the first external devices include a plurality of terminals adapted to carry out financial transactions, wherein the plurality of terminals communicate messages in a plurality of first external message formats, and wherein the at least one second external device includes a financial transaction authorization system, wherein in step (b) the at least one computer is operative to communicate messages between the plurality of terminals and the at least one financial transaction authorization system.

65. The method according to claim 64 wherein in step (b) the computer is operative to associate with each of a plurality of incoming messages generated by the terminals and the at least one authorization system, a message direction indicator.

66. The method according to claim 65 wherein in step (b) the computer is operative to convert each incoming message to a corresponding internal message responsive to the message direction indicator associated with the particular incoming message.

67. The method according to claim 64 wherein step (a) includes storing for each of the plurality of terminals and for the at least one authorization system, data corresponding to an external message format and a system address, and wherein in step (b) the computer is operative

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to convert each of a plurality of incoming messages generated by the terminals and the at least one authorization system, to a corresponding internal message responsive to the system address data corresponding to the terminal or authorization system generating the particular incoming message.

68. The method according to claim 66 wherein step (a) includes storing for each of the plurality of terminals and for the at least one authorization system, data corresponding to an external message format and a system address, and wherein in step (b) the computer is operative to convert each incoming message responsive to both the message direction indicator associated with the particular incoming message and the corresponding system address data corresponding to the particular terminal or authorization system generating the message.

69. In a system including:

a plurality of authorization systems communicating through authorization system messages in a plurality of authorization system message formats;

a plurality of terminal devices including at least one ATM, communicating terminal messages in a plurality of terminal message formats;

at least one computer in operative connection with the plurality of authorization systems and the plurality of terminal devices;

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at least one data store in operative connection with the at least one computer, the data store including data usable to transform the plurality of authorization message formats and the plurality of terminal message formats;

computer software adapted to operate in the at least one computer comprising:

at least one software component operative responsive to the data stored in the data store to cause the at least one computer to transform at least a portion of terminal messages in the plurality of terminal message formats to corresponding messages in an internal message format.

70. The system according to claim 69 wherein the computer software further includes at least one software component operative responsive to the data stored in the data store, to cause the at least one computer to transform at least a portion of authorization system messages in the plurality of authorization system message formats to corresponding messages in the internal message format.

71. The system according to claim 69 wherein the plurality of terminal messages generated by the plurality of terminal devices have associated therewith through operation of the computer software an incoming message direction indicator, and wherein the at least one software component is operative to cause the portion of the plurality of terminal messages

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generated by the terminal devices to be transformed to the internal message format responsive to the associated incoming message direction indicator.

72. The system according to claim 71 wherein the at least one software component is operative to cause the computer to include the incoming message direction indicator in each of the plurality of terminal messages portions to be transformed.

73. A system according to claim 69 wherein a plurality of messages in the internal message format directed to the plurality of terminal devices have associated therewith by the software an outgoing message direction indicator, and wherein the at least one software component is operative to cause the plurality of internal format messages directed to the terminal devices to be converted to the plurality of terminal message formats responsive to the associated outgoing direction indicator.

74. A computer readable media including a plurality of instructions operative to cause a computer to carry out a plurality of steps, comprising:

- (a) determining an external terminal message format associated with a terminal message generated by one of a plurality of financial transaction terminals, including at least one ATM;

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- (b) converting the terminal message by producing a first internal message corresponding to the terminal message in an internal format;
 - (c) determining a system address of an external financial transaction authorization system that can produce an authorization system message responsive to the terminal message;
 - (d) directing an authorization message corresponding to the terminal message to the system address of the financial transaction authorization system.

75. The computer readable media corresponding to claim 74 wherein the plurality of steps comprises:

- (e) determining an external authorization message format associated with the authorization system message generated by the financial transaction authorization system responsive to the authorization message;
- (f) converting the authorization system message by producing a second internal message corresponding to the authorization system message in the internal format;

(g) determining a system address of the financial transaction terminal which generated the terminal message;

(h) directing a response message corresponding to the authorization system message to the system address of the financial transaction terminal.

76. The computer readable media according to claim 75 wherein the plurality of steps

comprises:

prior to step (d) generating the authorization message in the external authorization message format responsive to the first internal message, and prior to step (h) generating the response message in the external terminal message format responsive to the second internal message.

77. A system for processing financial transactions comprising:

at least one database including data concerning transaction message formats, wherein the at least one database includes stored transformation information concerning transformation of messages from at least one internal message format to a plurality of external message formats including at least one external message format for communicating with an ATM, and from the plurality of external message formats to the at least one internal message format; and

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a computer in operative connection with the database, wherein the computer includes at least one software function operative responsive to the transaction message format data to determine a format of a received message, the received message having either an internal message format or one of the external message formats and a message direction indicator associated with the received message, the message direction indicator being indicative of either an incoming message direction or an outgoing message direction, and wherein when the received message is in the internal message format the at least one software function is operative responsive to the stored transformation information and the message direction indicator being indicative of the outgoing message direction, to transform the received message selectively to any one of the plurality of external message formats, and wherein when the received message is in one of the plurality of external message formats the at least one software function is operative responsive to the stored transformation information and the message direction indicator being indicative of the incoming message direction, to transform the received message to an internal message format.